

ABSTRACT

The present invention relates to methods and compositions for inhibiting pancreatic  $\beta$  cell dysfunction and Fas-mediated apoptosis. The invention relates to recombinant vectors, including viral vectors, comprising nucleic acids molecules encoding inhibitors of interleukin-1 $\beta$  (IL-1 $\beta$ ) and Fas-mediated apoptosis and the use of such vectors for transfer of said nucleic acid molecules into  $\beta$  cells. The invention encompasses genetically engineered  $\beta$  cells comprising nucleic acid molecules encoding inhibitors of IL-1 $\beta$  signal transduction. The invention further relates to methods for transplanting such genetically engineered  $\beta$  cells into a host recipient with a pancreatic disorder. The methods and compositions of the invention may be used to reduce IL-1 $\beta$  mediated  $\beta$  cell dysfunction and apoptosis, thereby reducing the insulinitis associated with pancreatic disorders such as insulin dependent diabetes mellitus (IDDM).